



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,068	04/06/2001	Takuma Hiramatsu	55340 (840)	9269
21874	7590	11/04/2004	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			NGUYEN, CHAU M	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/674,068	Applicant(s) HIRAMATSU, TAKUMA	
	Examiner Chau M Nguyen	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-43 is/are pending in the application.
4a) Of the above claim(s) 36 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 26-28,30-35,37,38,40,41 and 43 is/are rejected.
7) ☒ Claim(s) 29,39 and 42 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 07 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on July 07, 2004.

Claim 36 has been cancelled.

Claims 26, 27, 28, 30, 32, 33, 37, 38, and 39 have been amended.

In all, claims 26-35 and 37-43 are pending in this Office Action.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

2. Claims 26-28, 30-32, 37, 38, 40, 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welch et al. (Hereinafter "Welch") (Pat. No. 5,903,373) in view of Ota et al. (Hereinafter "Ota") (U.S. Pat. No. 5,986,790).

As claims 26 and 32, Welch discloses base station (fig. 8) (col. 11, lines 12-20) for use in a space-division multiplex optical wireless local area network for interconnecting a plurality of terminals (such as 14), the base station comprising:

an angle-diversity detector (receiver) (109, detailed in fig. 11) (col. 21, line 23 – col. 22, line 2); and

a multi-beam transmitter (105, detailed in fig. 10) for outputting a plurality of beams,

wherein the multi-beam transmitter includes a plurality of optical transmitters (see fig. 14), and each of the plurality of optical transmitters includes at least one LD or at least one LED as a light source (col. 11, lines 60-65).

Welch fails to show optical transmitter as to form a plurality of space cells each having a predetermined size. However, Ota, in figure 22B shows optical transmitter to form a plurality of space cell (detailed in fig. 23A) (Ota, col. 15, lines 61-62). Ota further discloses the transmitter (light source) is an array (consisting of seven) light sources (or LED). Therefore, it would have been obvious to one having ordinary skill in the art to use the transmitter configuration, which is formed by a plurality of LEDs and inherently including the predetermined size (seven of light sources), as taught by Ota, into the communication system of Welch in order to increase the transmitting power. One would have been motivated for doing this since with a plurality of light source, the transmitting beam is realized in spatial diversity (col. 16, lines 12-16) and as a results, enhancing receiving at the receiver end.

As claims 27 and 28, the system, as a combination of Welch and Ota, described above in that, Ota (fig. 24) shows the plurality of optical transmitters are set to specific direction and/or angle different from each other. (Ota, col. 16, lines 3-9).

As claims 30, 37, 38 Ota (fig. 22B) discloses the optical receiver including lenses system (175) dedicated to reception having a spatial resolution higher than a spatial resolution of the plurality of space cells each having a predetermined size (Ota, col. 15, lines 61-62 and col. 16, lines 9-16).

As claims 31, 40, 41 and 43, the system, as a combination of Welch and Ota, described above in that Welch and Ota do not clearly show a radius of a space cell is in range from 20cm to 100cm. However, it would have been an obvious matter of design choice, since the space cell is a transmitting device that LEDs are arranged or combined together, so, the number of LEDs have involved a mere change in the size of a space cell. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

3. Claims 33, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welch (Pat. No. 5,903,373) in view of Ota (U.S. Pat. No. 5,986,790), as applied in the claim 32, and in further view of Knapp (U.S. Pat. No. 4,975,926) and Sumi et al. (hereinafter "Sumi") (U.S. Pat. No. 4,536,057).

As claim 33, the modified network system of Welch and Ota, as described in section 8 above, fails to show receiver having an optical filter for selectively attenuating light transmitted from the transmitter of the terminal, and means for easily removing the optical filter.

However, Knapp discloses receiver having an optical filter (81, fig. 9) for selectively attenuating light transmitted from the transmitter of the terminal (Knapp, col. 5, lines 9-14 and lines 54-56). Knapp further differs from the claimed invention in that Knapp fails to show a means for removing the optical filter.

But, Sumi shows mounting mechanism for attaching and detaching the filter (Sumi, Abstract and col. 4, lines 34-36).

Therefore, it would have been obvious to one having ordinary skill in wireless (optical) communication art to use an optical receiver associated with an optical filter as mentioned by Knapp, and employ with filter mounting mechanism as taught by Sumi in order to attenuate the light transmitted from the transmitter and improve the flexibility of the device in both assembly and adjustment process (Sumi, col. 2, 18-23 and Abstract). One would have motivated for doing this since the filter prevents the interference between the optical signal and the room light (Knapp, col. 5, lines 12-14).

As claims 34 and 35, Ota (fig. 25) shows the transmitter including plurality of light sources (173a, 173b,) and a signal intensity multiplexer (206), that are used to select or detect a sufficient intensity from the spectrum components (Ota, col. 16, line 25-29).

Allowable Subject Matter

4. Claim 29 and its dependent claims (39 and 42) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claim rejections filed on July 07, 2004 have been fully considered but they are not, in part, persuasive.

Applicant's argument with respect to objection on Drawings (figs. 7 & 8) is render moot. The objection is now withdrawn since figures 7 & 8 have been labeled with - PRIOR ART-.

Applicant's argument with respect to rejection under 35 U.S.C 112, second paragraph, to claims 26-28, is render moot. The rejection under 35 U.S.C 112, second paragraph, is now withdrawn.

Applicant's argument with respect to rejection under 35 U.S.C. 103(a) which is respect to claims 26-28, 30-32, 37, 38, 40, 41, 43 (item 7, Remarks, page 11), claim 32 (item 8) and claims 29, 39, 42 (item 9). It is not persuasive.

Applicant(s) mainly argued:

"...Welch references discloses a space division, it does not discloses communication channels multiplexed in terms of space." (page 12, last 3 lines).

However, since the system of Welch can be used in multi-frequency channels (Welch, col. 4, lines 14-19) and the receiver is an angularly diverse detector (col. 22, lines 1-2). Therefore, Welch obviously discloses the limitations "communication channels multiplexed in terms of space" as cited in the claim invention.

In response to argument based on claims 27 and 28, (Remarks, page 19, second paragraph), in which, claims 27 and 28 (depended on 26), the limitation(s) cited as:

“... in the multi-beam transmitter, directions of the plurality of optical transmitter are set to specific directions (claim 27) and/or angles (claim 28) different from each other so as to form a plurality of space cells...”

The combination system of Welch and Ota (as applied in claim 26), in that, Ota (fig. 24) shows the directions, and angle as well, of the plurality of optical transmitter. Therefore, it is obvious to realize the transmitter are set to specific direction and/or angle from each other so as to form a plurality of space cells (Ota, col. 16, lines 3-16).

With respect to claims 30, 37 and 38 (Remarks, page 20, last paragraph), Ota, figure 22B, shows the optical receiver including lenses system (175, col. 15, lines 61-62) for adapting a spatial diversity (col. 15, lines 49-54).

With respect to claims 31, 40, 41 and 43 (Remarks, page 22, second paragraph), Even Welch and Ota does not introduce a value of radius of space cell. However, Welch teaches the size of the transceiver (cell, figs. 14 & 24) is merely an option as engineer designed choice to fit environment that user intends to use (col. 13, lines 18-21 and lines 26-29).

Further, a careful review of the disputed claims, Examiner find no such language as:

“... present invention provides the advantage that a number that equals the number of channels can perform communications in parallel at the same time.”
(Remarks, page 13, last 3 lines).

“...Ota does not assume the multiplexing of channels by space division in a single communication area.” (page 16, second paragraph, last 2 lines).

“...concept of assigning one or more light emitting elements or light receiving elements for grouping is not disclosed.” (page 17, first paragraph, last 3 lines).

that cited in the claim invention.

Perhaps applicant(s) refers to certain features that are disclosed in the present application but not recited in the rejected claims in making the contention that the Welch and Ota references fail to show certain feature(s) of applicant's invention. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M Nguyen whose telephone number is 571-272-3030. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.M.N.
Oct. 05, 2004



JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600